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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/646,810

08/25/2003

Naoki Imachi

SNY-039

1318

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EXAMINER

CHU, HELEN OK

ART UNIT

PAPER NUMBER

1795

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/646,810	<b>Applicant(s)</b> IMACHI ET AL.	
	<b>Examiner</b> HELEN O. CHU	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's Amendment was received on March 19, 2007. Claim 1 has been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

### ***Claim Rejections - 35 USC § 102/103***

3. The rejections under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoshimura et al., on claims 1-4, 9-12 are maintained.
4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1795

5. Claims 1-4, 9-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoshimura et al. (US Publication 2002/0051910).

In regard to claim 1-4, 9-12, the Yoshimura et al. reference discloses a lithium secondary battery with a negative electrode comprising carbon (Paragraph 19), positive electrode, a polyethylene separator (Paragraph 46) and a nonaqueous solvent to be ethylene carbonate, gamma-butyrolactone and 1,3 dioxolane (Paragraph 17).

Furthermore, since the wettability improving agent is the same as that of the Applicant's invention, the physicals properties and characteristics must inherently be the same as the Applicant's invention such as an oxidative decomposition potential in a range of 4.5 V to 6.2 V based on the potential of a lithium reference electrode, oxidative decomposition potential of the wettability improving agent is smaller than that of the nonaqueous solvent and reductive decomposition potential of the wettability improving agent is not greater than 0.0 V.

6. Claims 1-4, 9-12 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kim et al. (US Publication 2003/0073005 A1).

In regard to claim 1-4, 9-12, the Yoshimura et al. reference discloses a lithium secondary battery (Paragraph 5) with a negative electrode comprising carbon (Paragraph 51), positive electrode, a polyethylene separator (Paragraph 55) and a nonaqueous mixed organic solvent including two or more of the organic compounds (Paragraph 36) from a strong polar solvent groups such as gamma-butyrolactone and

Art Unit: 1795

ethylene carbonate (Paragraph 41) and a lithium protecting solvent group such as dioxolane (Paragraph 42). Furthermore, since the wettability improving agent is the same as that of the Applicant's invention, the physicals properties and characteristics must inherently be the same as the Applicant's invention such as an oxidative decomposition potential in a range of 4.5 V to 6.2 V based on the potential of a lithium reference electrode, oxidative decomposition potential of the wettability improving agent is smaller than that of the nonaqueous solvent and reductive decomposition potential of the wettability improving agent is not greater than 0.0 V.

***Claim Rejections - 35 USC § 103***

7. The rejections under 35 U.S.C 103(a) as obvious over Yoshimura et al., on claims 5-8, 13-16 are maintained
8. The rejections under 35 U.S.C 103(a) as unpatentable over Iwamoto et al (US Publication 2002/0039677 A1) in view of Kim et al. (US 2003/0073005 A1), on claim 1-16 are withdrawn because of Applicant's amendments.
9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
10. Claims 5-8, 13-16 are rejected under 35 U.S.C. 103(a) as obvious over Yoshimura et al. (US Publication 2002/0051910).

The Yoshimura et al. reference discloses the invention above and further incorporated herein. Further it would have been obvious to one of ordinary skill to vary the mass ratio of different solvents such as 0% of 1,3- dioxolane or even under 3% mass ratio of the total electrolyte solvents to choose the instantly claimed value through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values involve only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Furthermore, it would be inherent that the reductive decomposition potential of the wettability improving agent is no greater than 0.0V because this is only a reference state. In addition, since the secondary battery is the same battery as the instantly claimed invention, the intrinsic properties of the wettability agent must also be the same, that is 1,3-dioxolane has a decomposition potential of 4.5-6.2 V or 4.8 - 5.2 V.

11. Claims 5-8, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 2003/0073005 A1).

The Kim et al. reference discloses the invention above and further incorporated herein. The Kim et al. reference also discloses a dioxolane is used between 0-30% by volume of the total electrolyte. It would have been obvious to one of ordinary skill to vary the mass ratio of different solvents such as 0% of dioxolane or even under 3% mass ratio of the total electrolyte solvents to choose the instantly claimed value through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values involve only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Furthermore, it would be inherent that the reductive decomposition potential of the wettability improving agent is no greater than 0.0V because this is only a reference state. In addition, since the secondary battery is the same battery as the instantly claimed invention, the intrinsic properties of the wettability agent must also be the same, that is 1,3-dioxolane has a decomposition potential of 4.5-6.2 V or 4.8 - 5.2 V.

### ***Response to Arguments***

Applicant's arguments filed December 31, 2007 have been fully considered but they are not persuasive.

Applicant's principal arguments are:

A) The Applicant argues *"The Office's understanding is not correct. The separator of Yoshimura comprises repeating units wherein p-phenylene is combined with a certain specified group. The Office refers to paragraph [0046] of Yoshimura for the disclosure of a polyethylene separator. However, paragraph [0046] describes the use, in comparative example 1.4, of an ethylene group (the (A) group in the formula shown in the heading of Table 2) as the group combined with the p-phenylene in the repeating units. A polymer of the units in comparative example 1.4 is not a polyethylene and does not comprise polyethylene."*

In response to Applicant's arguments, please consider the following

A) The arguments that "a polymer of the units in Comparative example 1.4 is not a polyethylene and does not comprise polyethylene" are based on Applicant's assertions without. It is first contradiction to state that *" , in comparative example 1.4, of an ethylene group (the (A) group in the formula shown in the heading of Table 2) as the*

*group combined with the p-phenylene in the repeating unit”* and next state that it does not comprise a polyethylene. Table 2 indicates repeating units of p-phenylene with a combination of A, A as indicated on Comparative Example 1.4 is an ethylene group. A polymer with an ethylene repeating group is a polyethylene compound.

### **Conclusion**

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN O. CHU whose telephone number is (571)272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Patrick Ryan can be reached on (571) 272-12922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOC

/Raymond Alejandro/

Primary Examiner, Art Unit 1795